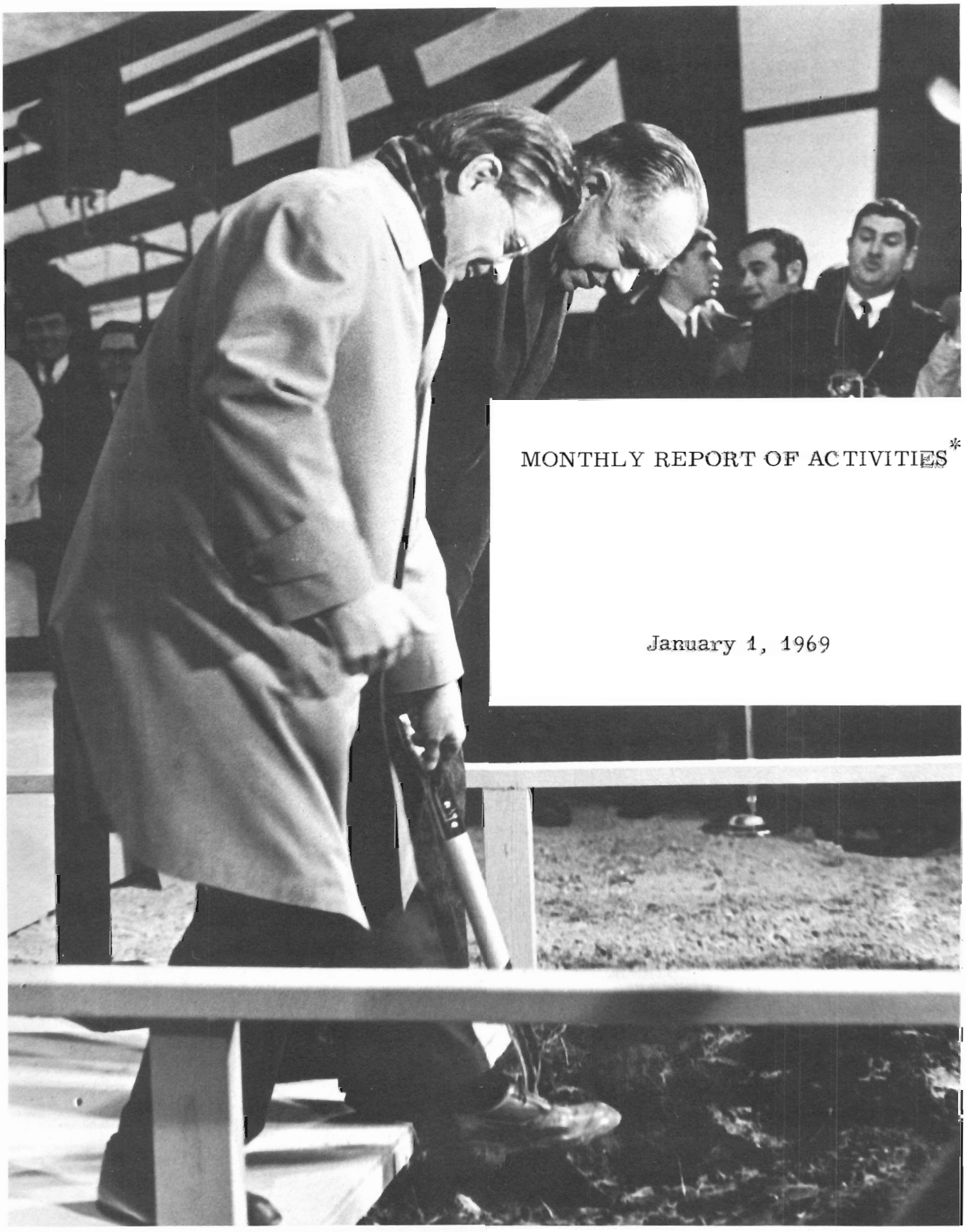
national accelerator laboratory



MONTHLY REPORT OF ACTIVITIES*

January 1, 1969

*This work was done under auspices of the United States Atomic Energy Commission.

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MONTHLY REPORT OF ACTIVITIES

F. T. Cole

January 1, 1969

Abstract: This report covers the activities of the National Accelerator Laboratory for the month of December, 1968.

General

1. Groundbreaking. The ceremony to mark the breaking of ground for the first permanent Laboratory building, the Linac Enclosure, was held on December 1. In spite of very poor weather, nearly a thousand people attended. Chairman Seaborg gave the principal address. In addition, Congressman Melvin Price, Commissioners Ramey and Tape, President Ramsey of URA, J. R. Sanford, head of the NAL Users Organization, and R. R. Wilson spoke. The cover photograph shows Seaborg and Wilson collaborating in turning the first shovel of earth. Remarks of all the speakers are available through the Laboratory Public Information Office. Figures 1 through 4 show the speakers and dignitaries at the ceremony.

Construction of the Linac Enclosure has proceeded according to schedule since the Groundbreaking. The excavation work is shown in Fig. 5.

2. Users Meeting. The second annual meeting of the National Accelerator Laboratory Users Organization was held December 2 at the Laboratory

Village. It was possible to hold it here because the Curia, the major meeting room, was just finished for the Groundbreaking. Figure 6 shows the meeting in session.

3. Booster Enclosure. Construction Design (Title II) of the Booster Enclosure, the second permanent building of the Laboratory, was completed on schedule on December 31. Invitations to bid have been issued.

4. Laboratory Staff. On January 1, the Laboratory had 305 employees, including 76 scientists and engineers.

Linac

1. Preaccelerator Test Facility. A joint facility for the testing of 750-kV high-gradient accelerating columns has been arranged with the Argonne National Laboratory. The test facility will utilize the ANL high-voltage supply, which is now being installed in the pit in the Linac Laboratory. Figure 7 is a photograph taken during the installation, which was almost complete at the end of December.

This installation will also serve as the preaccelerator for the 10-MeV linac prototype until the supply ordered from the Haefely Co. is delivered.

2. 10-MeV Prototype. The 24-foot cavity has been checked for leaks. Only a few minor leaks in flange welds were found.

Full-power tests on a single drift tube have been satisfactorily completed.

Booster

1. Magnet Design. The magnet pole widths have been fixed at 6 in. for the D magnet and 6.5 in. for the F magnet. Purchase requisitions for the prototype magnet materials, with options for the final production orders of magnet steel, copper, and dies, are now in Purchasing.

2. Vacuum. A 10-foot magnet enclosed in a stainless-steel vacuum sheath in order to test vacuum properties has reached 2×10^{-6} torr after only three days of pumping, with no previous bake-out. Baking out at various temperatures is now in progress. The model is shown in Fig. 8.

Main Ring

1. Enclosure Design. Design Specification (Title I) for the main-ring enclosure (tunnel, utility buildings, accesses, and so forth) has been started. Not yet resolved is the question of whether the tunnel will be constructed of precast concrete or corrugated galvanized steel (the prototype is being constructed with sections of both materials).

Radiation Physics

Measurements were made of remanent radioactivity at the 50-MeV end of the Argonne linac. The remanent activity of the ANL tank, scaled to our intensity, leads us to conclude that the shielding of our linac at the equivalent energy will be adequate.

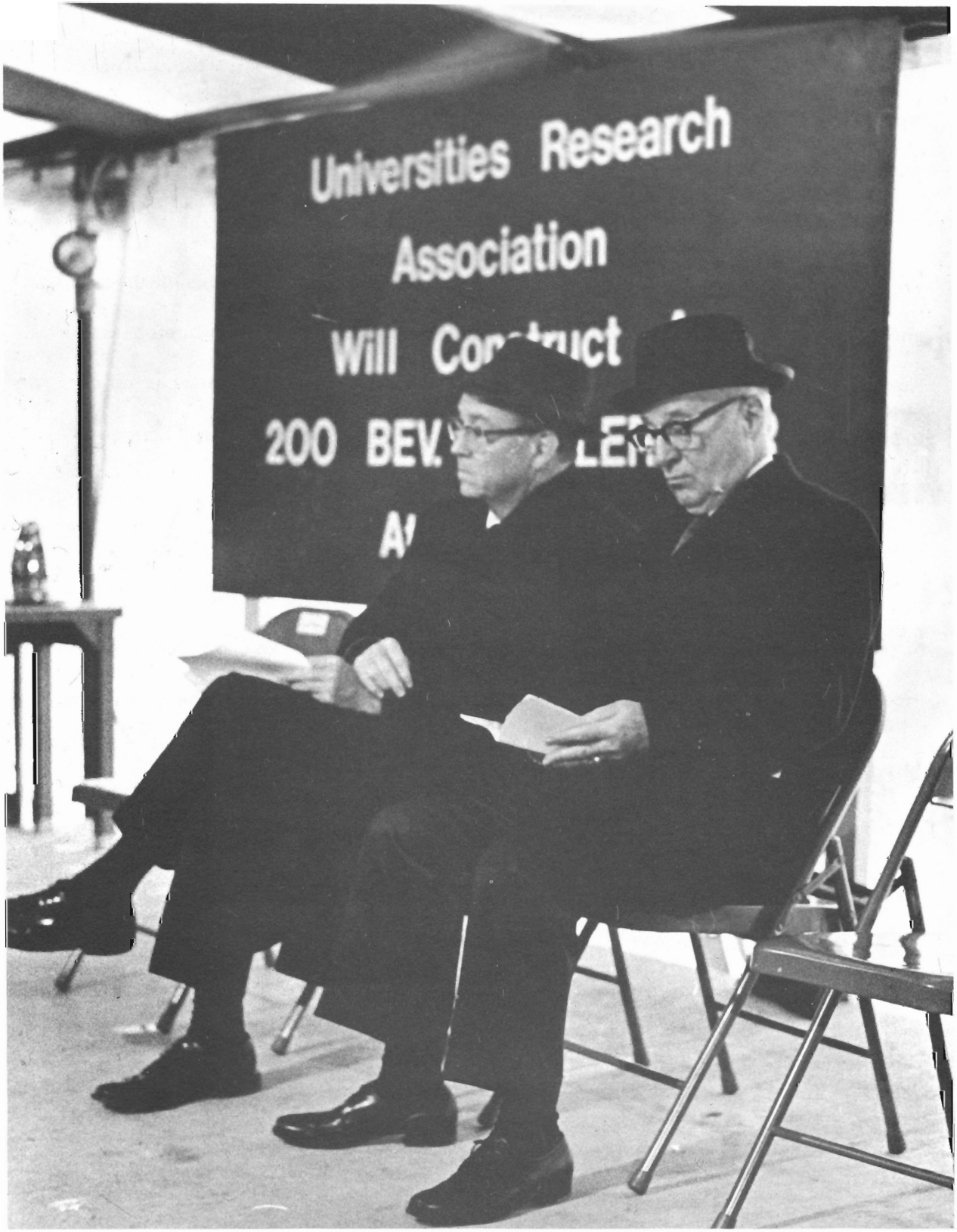

Fig. 1. Commissioner James T. Ramey and Representative Melvin Price at the Groundbreaking.

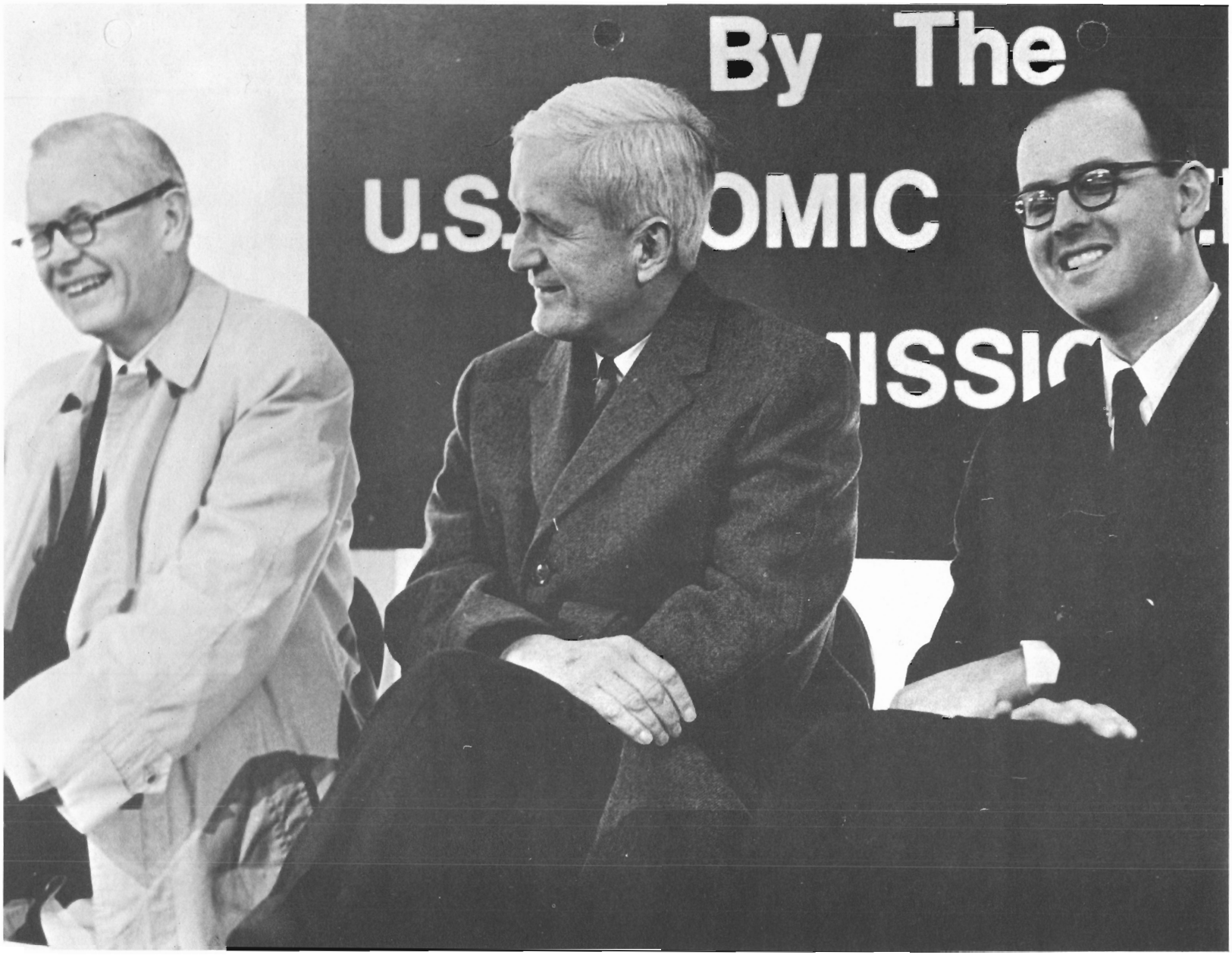

Fig. 2. Commissioner Gerald F. Tape, President Ramsey of URA, and J. R. Sanford of Brookhaven National Laboratory, head of the NAL Users Organization.

Fig. 3. The Curia at the time of the Reception.

Fig. 4. The Batavia High School Band at the Reception.

Fig. 5. A recent aerial photograph of the Linac Enclosure construction (looking north).

Fig. 6. The Users Meeting.

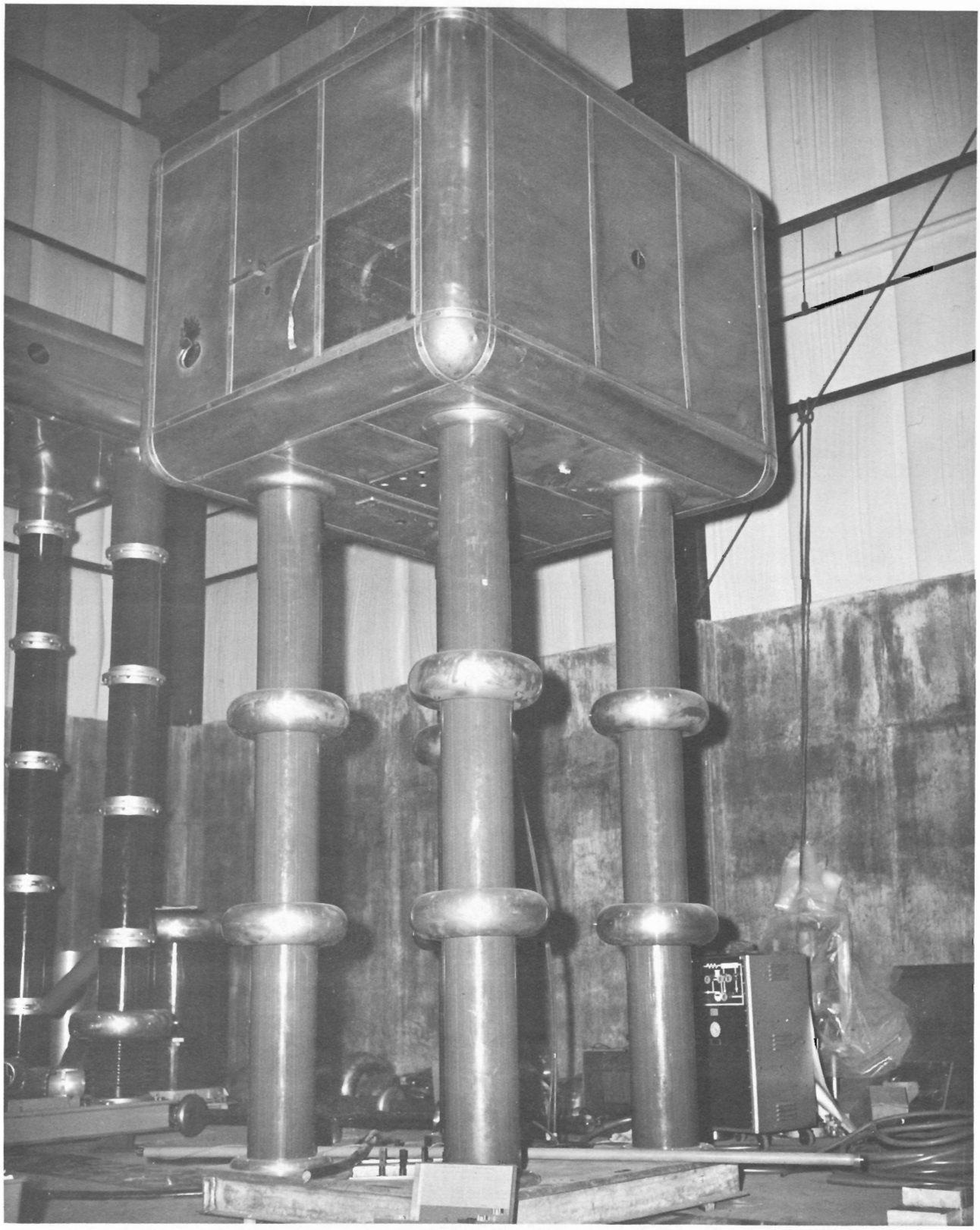

Fig. 7. The Preaccelerator Test Facility.

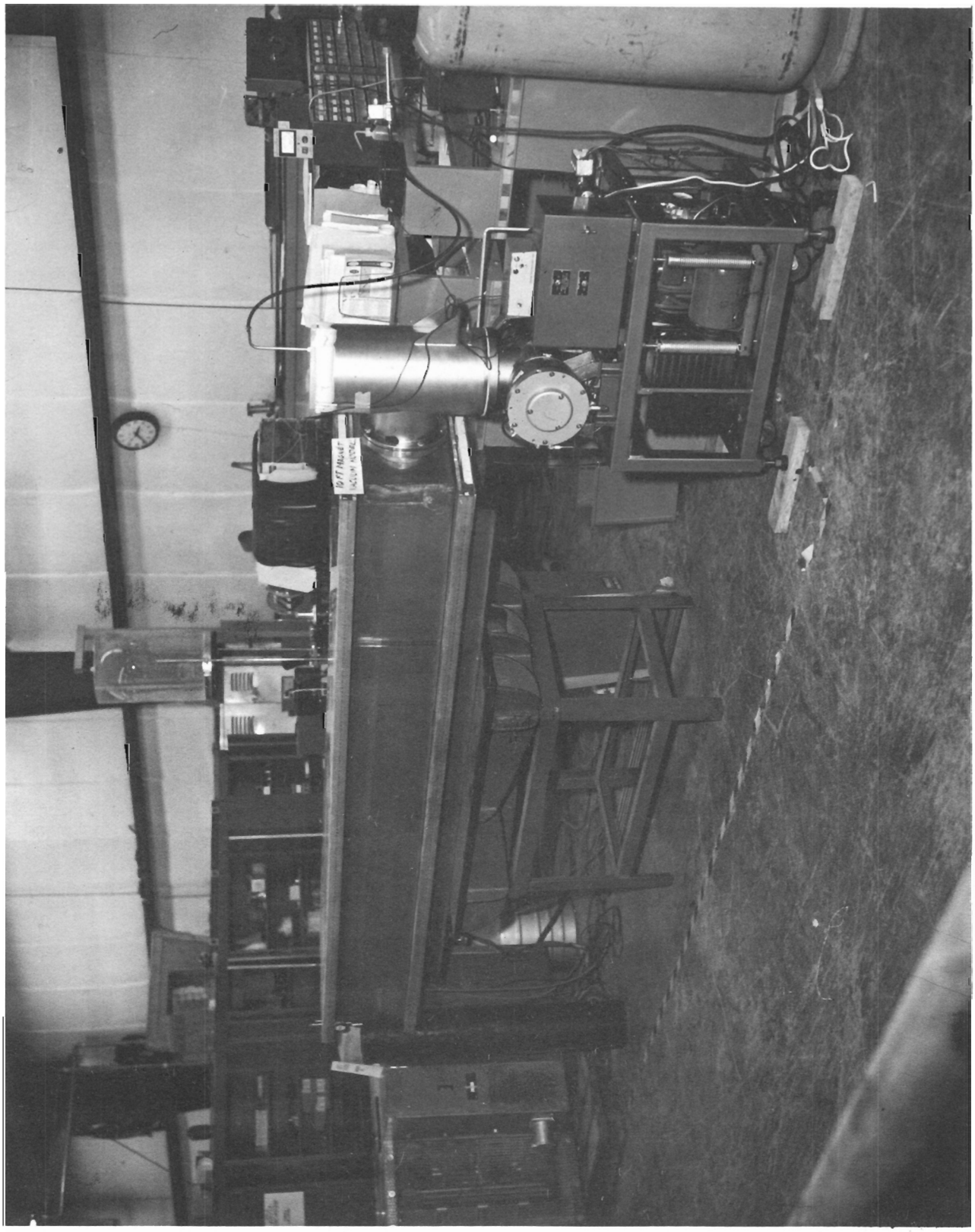

Fig. 8. The Booster full-length vacuum model.